WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION

Wisconsin Statewide Mathematics Initiative
Summer 2013

DPI UPDATES

WSMI ADMINISTRATOR DAY

THURSDAY, AUGUST 1, 2013

Diana L. Kasbaum
Mathematics Education Consultant
Common Core State Standards Team

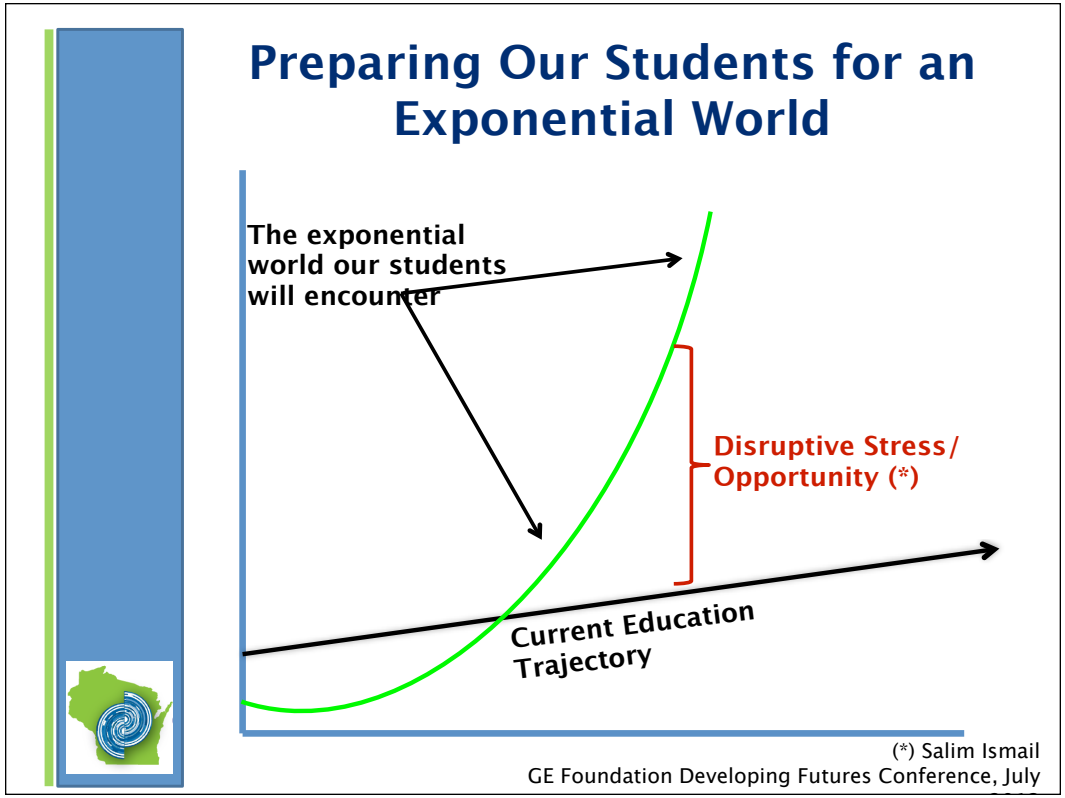
The Challenge

"Every student must graduate ready f
further education and the workforce. We must align our efforts so all our students are prepared to succeed in college or a career."

Tony Evers, State Superintendent
Wisconsin Department of Public Instruction

The CCSSM call for **significant** changes in mathematics teaching and learning to meet this challenge.

State Superintendent Tony Evers' focus is on ensuring that every Wisconsin student is prepared for his/her future.



Our challenge: how do we ensure that our students are prepared for the ever-changing world that they will be entering?

Promise of the CCSSM

These standards are not intended to be new names for doing old business. They are a call to take the next step. It is time for states to work together to build on lessons learned from two decades of standards based reforms. It is time to recognize that these standards are not just promises to our children, but promises we intend to keep.

http://www.corestandards.org/

WI CCSS Journey

- CCSS – Getting it straight
- Statewide rollout
- New DPI team
- Online resources to support WI districts
- Staying the course

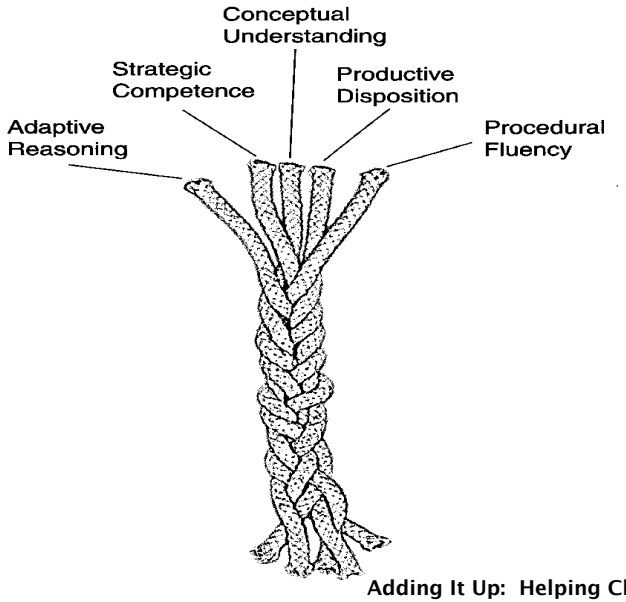
CCSSM: Getting it straight

- State led initiative – led by CCSSO and NGA
- Research-based
- Internationally benchmarked
- Widely reviewed
- Standards count on local implementation efforts
- Anchored in college and career readiness

CCSS – A State-Led Initiative

- Beginning in the spring of 2009, Governors and state commissioners of education from 48 states, 2 territories and the District of Columbia committed to developing a common core of state K-12 English-language arts (ELA) and mathematics standards.
- The Common Core State Standards Initiative (CCSSI) was a state-led effort coordinated by the **National Governors Association** (NGA) and the **Council of Chief State School Officers** (CCSSO).
- www.corestandards.org

CCSSM Research-Based



Adding It Up: Helping Children Learn Mathematics
National Research Council, 2001

On track rollout

ugust 12, 2010

Wisconsin Common Core State Standards (CCSS)

Focusing Instruction to Create Better-Prepared Learners

"The Work of School Districts"

Phase-by-Phase Roll Out

Phase 1 **Understanding,** Curriculum, Assessment, Instruction	Phase 2 Understanding, **Curriculum,** Assessment, Instruction	Phase 3 Understanding, Curriculum, **Assessment, Instruction**		
2010-11	2011-12	2012-13	2013-14	2014-15 *Implement new state summative assessment*
• Understand the underpinnings in instruction and the impetus for the CCSS • Understand the shift required for systems change under CCSS • Investigate and interpret the implications for instruction embedded in the knowledge, skills and understandings in grade level CCSS • Plan for curriculum development • Evaluate the CCSS as representing College and Career Readiness • Understand the implications on local and state assessments	• Develop local curriculum based on an instructional focus to implement the CCSS • Align and select resources to implement changes in instruction • Research and align high quality instructional strategies to CCSS • Review and align local formative and benchmark assessments to CCSS • Evaluate the quality of the CCSS local curriculum	• Plan and develop units of study and lesson plans using the CCSS local curriculum • Conduct collaborative lesson study and reflection based on CCSS integration • Select and use high quality differentiated instructional strategies to teach CCSS in core classrooms for all students • Use high quality teaching methods to promote CCSS learning in interventions that support core instruction • Evaluate and adjust the district/school RtI system based on the CCSS local curriculum • Collaboratively develop/select, administer and analyze summative assessments and evaluate the CCSS local curriculum • Collaboratively develop/select, administer and analyze benchmark assessments to measure progress on CCSS local curriculum • Develop/select, administer and analyze formative assessments to measure progress on CCSS local curriculum • Conduct collaborative team studies of student data and progress • Design and use measures to gauge progress and effectiveness of interventions based on CCSS local curriculum • Investigate, design and implement standards-based grading and reporting systems		

Foundations and Investigations

Planning, Assessment, Instruction and Reporting

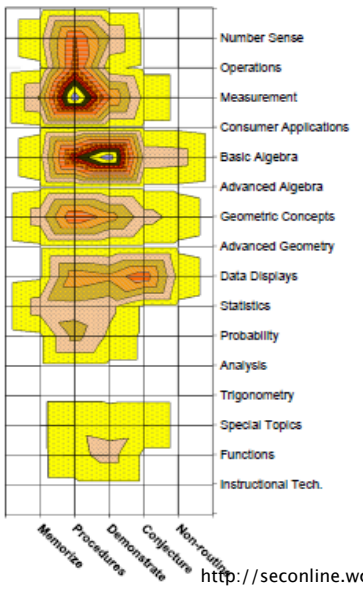
Curriculum and Resources

Developed by Wisconsin CESAs in collaboration with the Wisconsin Department of Public Instruction

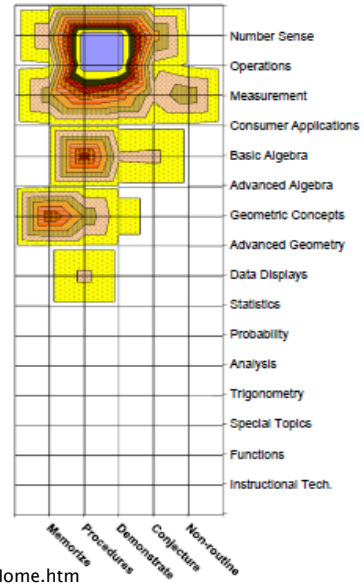
CESAs MAKE POSSIBLE THE SCHOOLS WISCONSIN WANTS

Comparing WMAS to CCSSM – Grade 4

WI Model Academic Standards



Common Core State Standards for Mathematics

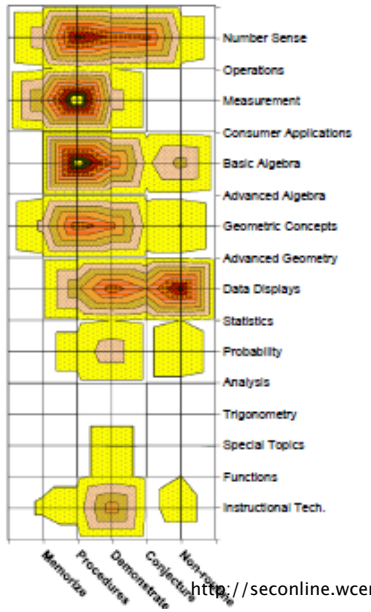


http://seconline.wceruw.org/secWebHome.htm

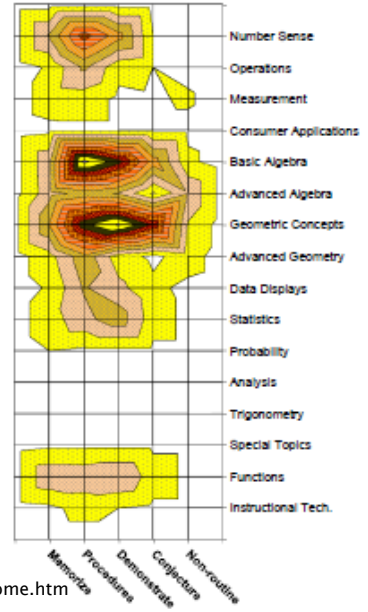
Surveys of Enacted Curriculum: http://seconline.wceruw.org/secWebHome.htm

Comparing WMAS to CCSSM – Grade 8

WI Model Academic Standards



Common Core State Standards for Mathematics



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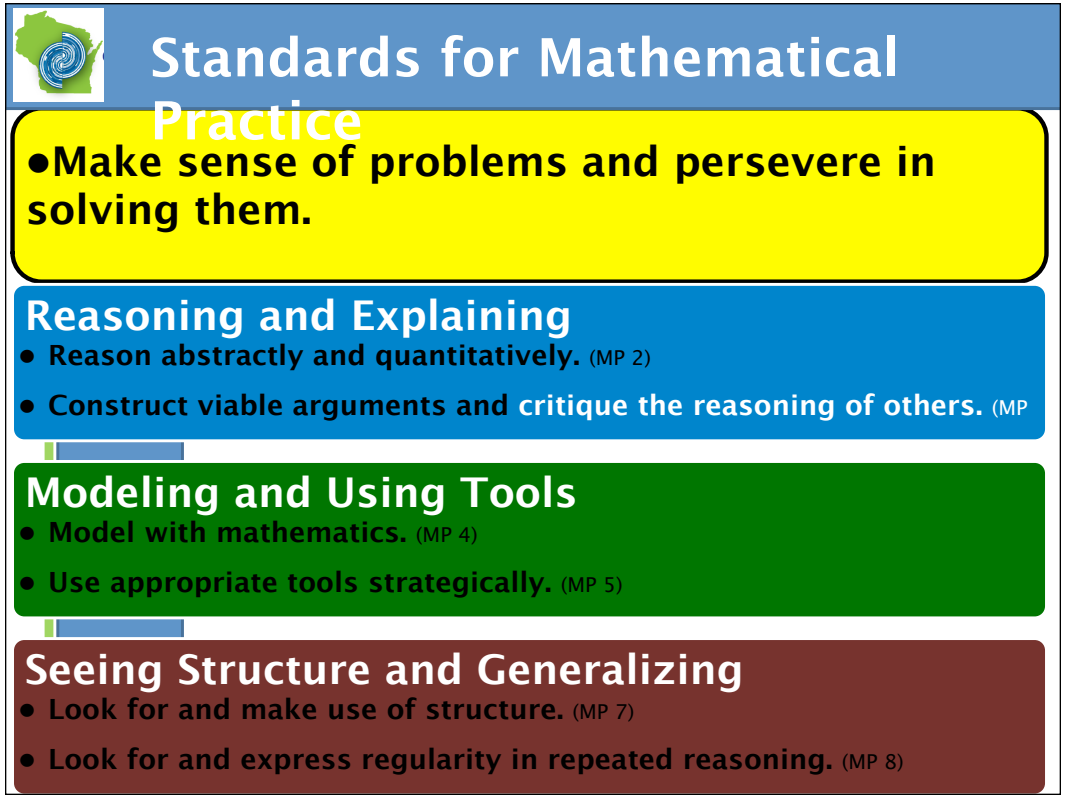
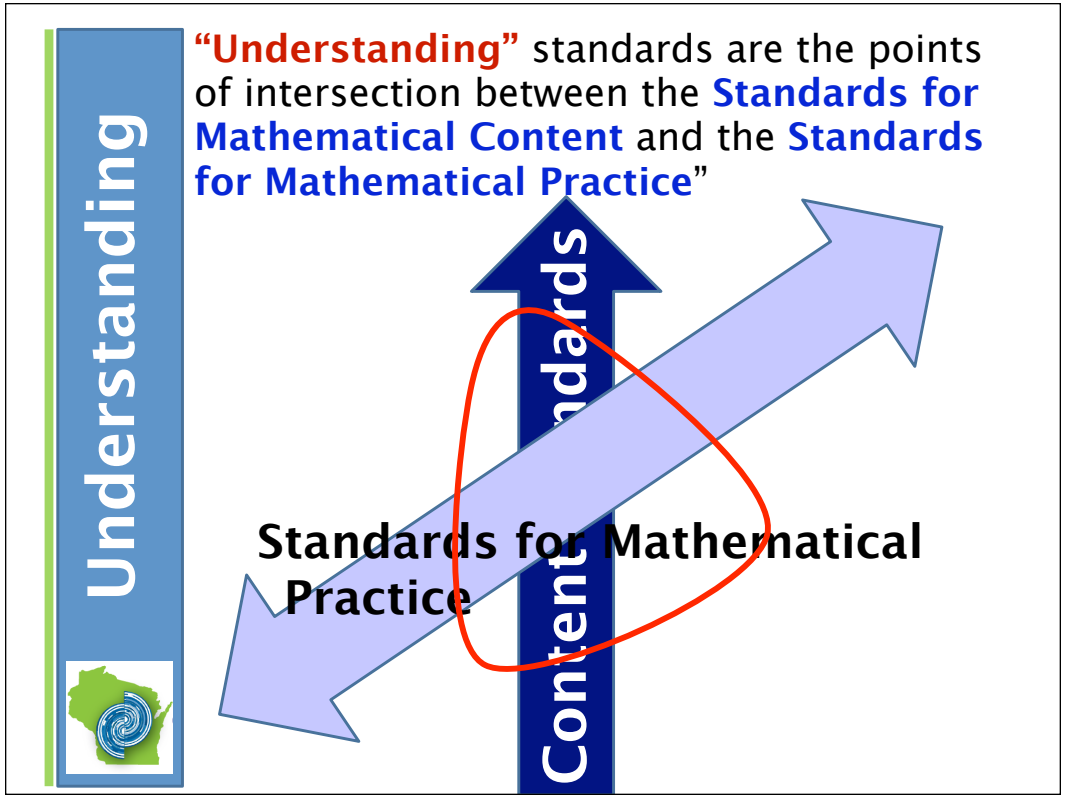


The Standards for Mathematical Practice can be combined into an overarching view (Make sense of problems and persevere in solving them; and attend to precision.), as well as three broader categories: Reasoning and Explaining; Modeling and Using Tools; Seeing Structure and Generalizing.



A form of the word "**understand**" appears 120 times in the cluster headings or Standards statements of the Common Core State Standards for Mathematics.

Rigor – equal intensity in conceptual understanding, procedural skill/fluency and application. Historically, we (US Schools) have put more emphasis on procedural skill and fluency and less on understanding and application. These standards call for us to put equal intensity on these three aspects of mathematics.

One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the students' mathematical maturity, why a particular mathematical statement is true or where a mathematical statement comes from…

The student who can explain the rule understands the mathematics, and may have a better chance to succeed at a less familiar task.

Mathematical understanding and procedural skill are equally important, and both are assessable using mathematical tasks of sufficient richness.

Understand is used in the CCSSM to mean that students can explain the concept with mathematical reasoning, including:

concrete illustrations

mathematical representations and example applications

In Wisconsin, the focus must be on the expertise (sometimes referred to as habits of mind) that all students must develop. The Standards for Mathematical Practice define what it means to be mathematically literate.

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

Understanding

"Understand" is used in the CCSSM to mean that students can **explain the concept with mathematical reasoning**, including:

- **concrete illustrations**
- **mathematical representations**
- **example applications.**

Phil Daro, 2011

Understanding

Mathematical Understanding

One hallmark of mathematical understanding is the **ability to justify**, in a way appropriate to the students' mathematical maturity, why a particular mathematical statement is true or where a mathematical statement comes from…

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Common Core State Standards for Mathematics, 2010

COMMON CORE
STATE STANDARDS
WISCONSIN

Common Core State

Common Core State Standards Team (CCSS)

All Wisconsin students need relevant and rigorous literacy and mathematics instruction to ensure academic proficiency and success beyond graduation. Through a statewide Collaboratory, the CCSSI team creates and organizes the educator resources that will make this goal a

17

To support educators in the field, your DPI created the Common Core State Standards Team in late 2012.

The team's work centers on literacy and mathematics. The team collaborates with a variety of stakeholders including educators, professional organizations, and Institutions of Higher Education (IHEs), as well as teams within the Department of Public Instruction, to create and organize resources educators need to move all students toward proficiency and success in literacy and mathematics.

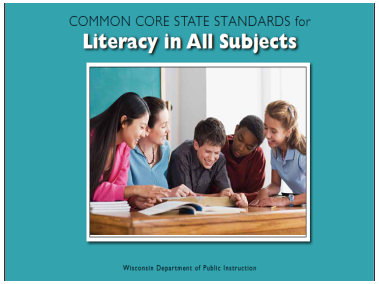
CCSS Team …….

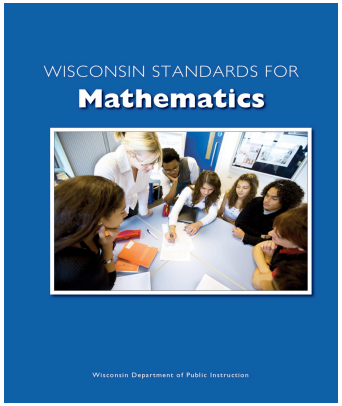
Tweet with us

☺☺☺

@WISDPIMath

Wisconsin Standards





CCSS Resources

DPI CCSS Webpage

- Latest News
- WI Resources
  - Videos,
- Quick Links
- FAQ, Facts & Myths
- Standards, Instruction, Assessment Resources
- LiveBinders

Resources to Support CCSS

WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION

Home | Parents & Students | Schools & Educators | Libraries | Data & Media | Site Index | Search

CCSS Home | Professional Educators | Instructional Leaders | IHE | Community | Families | Partners | Contact CCSS Team

Mathematics in Wisconsin

Standards | Instruction | Assessment

Latest News

Jul 09 Common Standards Common Goals

Jul 09 Wisconsin and the CCSS 2-Pager

Jul 02 New 6-8 Mathematics Standards Livebinder

COMMON CORE STATE STANDARDS WISCONSIN

Related Links

- About Common Core State Standards
- English Language Arts
- Literacy in All Subjects
- Academic Standards
- Professional Learning on Demand
- Read Wisconsin

WI Mathematics Resources

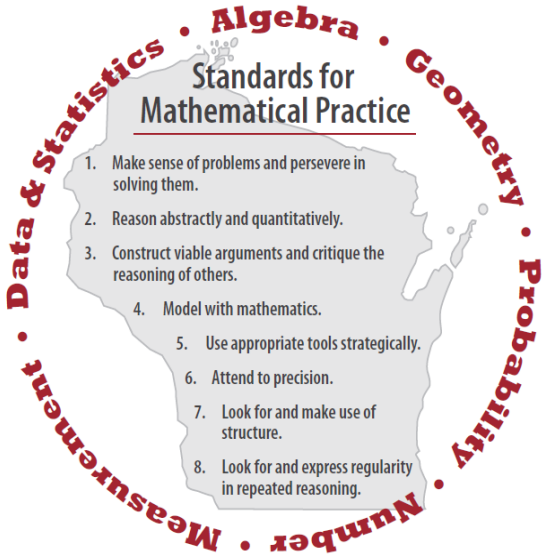
- Mathematics Education FAQ and Resources
- WI Standards for Mathematics
- Mathematics Common Core Resources

Lesson Plan

In the works….

Lesson Plan Framework

- Launch
- Explore
- Summarize
- Reflect
- Apply



Mathematical Habits of


Smarter
Balanced
Assessment Consortium

Smarter Balanced Assessment Claims for Mathematics

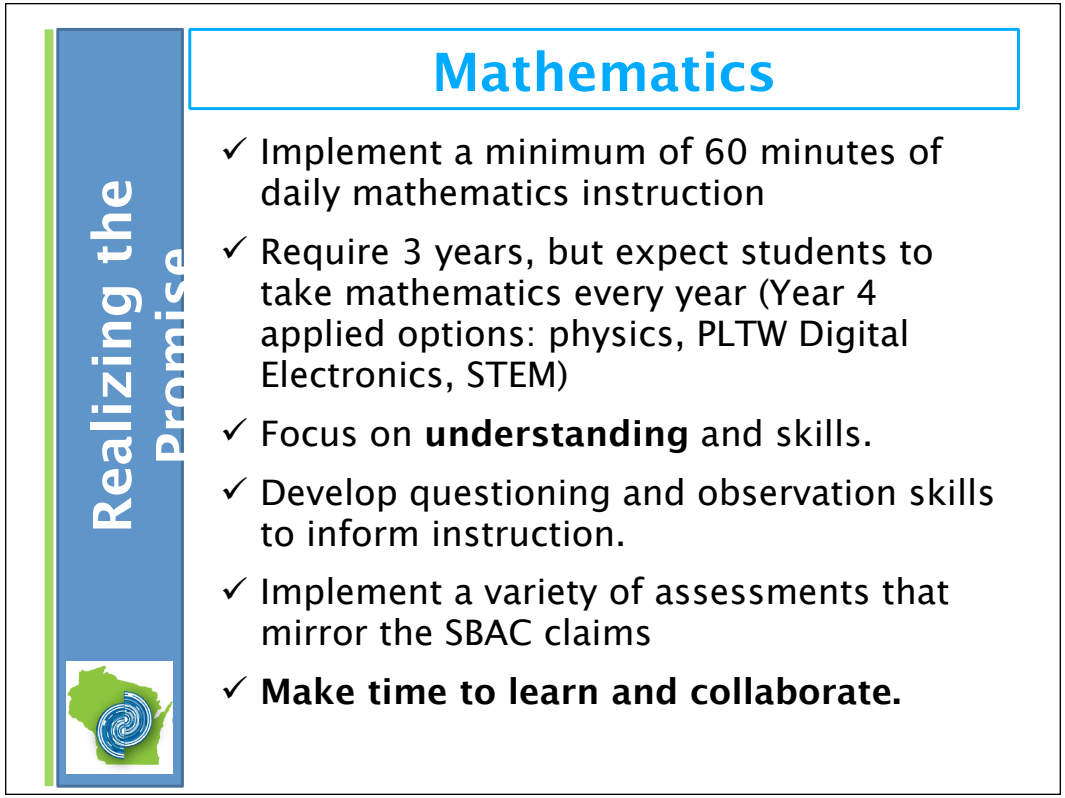
Concepts and Procedures	udents can explain and apply mathematical concepts d **carry out mathematical procedures with ecision and fluency**."
Problem Solving	udents can frame and solve a range of complex oblems in **pure and applied mathematics**."
Communicating Reasoning	udents can clearly and precisely **construct viable guments to support their own reasoning and to itique the reasoning of others**."
Data Analysis and Modeling	udents can **analyze complex, real-world scenarios d can use mathematical models to interpret and lve problems**."

Cognitive Rigor Matrix for Mathematics

See link for full doc

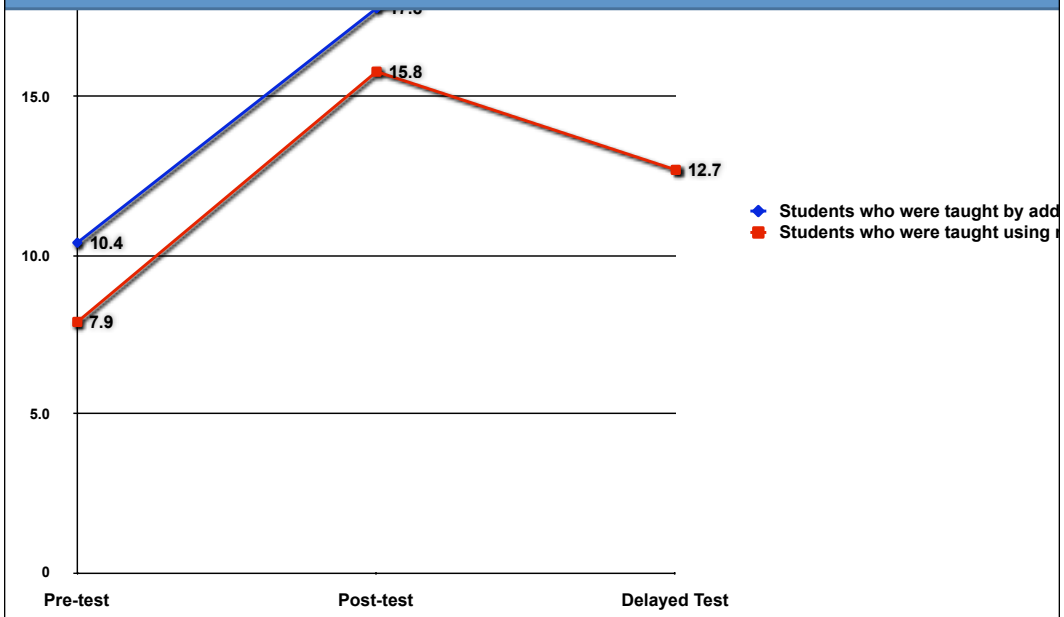
Depth of Thinking (Webb) + Type of Thinking (Revised Bloom)	DOK Level 1 Recall & Reproduction	DOK Level 2 Basic Skills & Concepts	DOK Level 3 Strategic Thinking & Reasoning	DOK Level 4 Extended Thinking
Remember	• Recall conversions, terms, facts			
Understand	• Evaluate an expression • Locate points on a grid or number on number line • Solve a one-step problem • Represent math relationships in words, pictures, or symbols	• Specify, explain relationships • Make basic inferences or logical predictions from data/observations • Use models /diagrams to explain concepts • Make and explain estimates	• Use concepts to solve non-routine problems • Use supporting evidence to justify conjectures, generalize, or connect ideas • Explain reasoning when more than one response is possible • Explain phenomena in terms of concepts	• Relate mathematical concepts to other content areas, other domains • Develop generalizations of the results obtained and the strategies used and apply them to new problem situations

SBAC Resources



If we are to meet the CCSSM, significant instructional changes need to happen in our classrooms. Classrooms need to be places where the Standards for Mathematical Practice come to life. Students need to be actively engaged. Classroom discourse needs to be an integral part of teaching and learning. Schools and districts also need to prioritize the learning of educators and provide time for them to reflect and collaborate.

Focusing on Misconceptions vs. Procedures



Research on Retention of Learning: Shell Center: Swan et al

What will these changes look like in mathematics classrooms?

- Students are engaged in meaningful and challenging mathematics tailored to their needs.
- Students have the opportunity to develop both conceptual understanding and procedural fluency.
- Students are given opportunities to see connections between mathematical concepts.
- Teachers intentionally orchestrate classroom discourse to scaffold student learning and build understanding.
- Students collaborate on purposeful tasks.
- Students show evidence of developing

WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION

http://dpi.wi.gov/

NGSS
Science and Engineering

- Planning and Carrying Out Investigations
- Analyzing and Interpreting Data
- Constructing Explanations and Designing Solutions
- Engaging in Argument from Evidence
- Asking Questions and Defining Problems
- Developing and Using Models
- Obtaining, Evaluating, and Communicating Information
- Using Mathematics and Computational Thinking

What will these changes look like in classrooms in your school?

http://dpi.wi.gov/

Thank you!!

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